16x16 Modularised Matrix HDMI-DVI-4k2k-HDBaseT - # 15276

Operation Manual

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Introduction

The Modularized Matrix series are designed to route the signal of 16 sources to any connected 16 displays, providing resolution up to Full HD 1080p/4Kx2K and WUXGA (1920x1200@60HzRB). Besides the regular matrix functionality, the matrix models are very attractive to the integrators because of their great flexibility, with the most advanced modularization design these models can be setup as a matrix of HDMI, DVI-D, CAT5e/6/7, VGA or their any combinations (count with eight, for example, a matrix with 8-HDMI-in/8-DVI-IN and 8-HDMI-OUT/8-DVI-OUT), all you need to do is to swap the input or output modules as you wish. Refers to section 8 for available module boards.

Applications

- Public information display
- Educational demo
- Professional Presentation
- Advertising display
- Hospital Operation Room

System Requirements

Input source equipments like PC/Laptop/DVD/Blu-ray players output display TV/monitor or CAT5e/6/7 to HDMI receivers.

Features

- HDMI, HDCP 1.1 and DVI 1.0 compliant
- Changeable input and output boards
- Input and output module types can be mixed and added in increment of 8 from 8x8 up to 16x16 with HDMI, DVI, CAT5e/6/7 and VGA interfaces
- Supports LPCM 7.1CH, Dolby TrueHD, Dolby Digital Plus and DTS-HD Master Audio transmission
- Supports a wide range of PC and HDTV resolutions from VGA to WUXGA and 480i to 1080p or 4Kx2K
- Supports RS-232, Telnet and Web GUI controls
- Supports redundant power supply
- HDMI cable length with a resolution 1080p/8bits&12bits the Input/ Output source can be 15m/15m(8bits) and 10/10m(12bits) away
- EDID modes:

a.Standard mode: Factory Default
b.Automatic mode: Taking EDID from the lowest output port
c.Manual mode: Can assign any output to any input port

- CAT5e/6/7 cable length with a resolution 1080p/8bits&12bits the Input/Output source can be 100m/100m away
- 5Play™ convergence: Video, Audio, PoE, Ethernet & Control (IR & RS-232)
- 4Play convergence: Video, Audio, PoE & Control (IR & RS-232)
- 3Play convergence: Video, Audio & Control (IR & RS-232)

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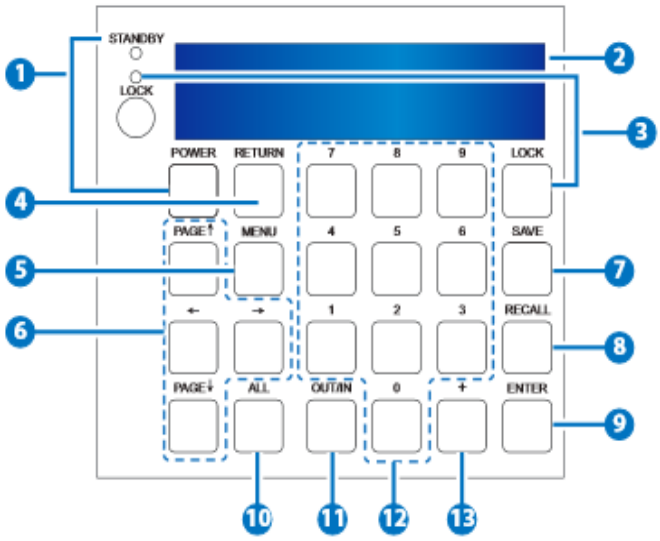
Operation Controls and Functions

Front Panel



1. POWER button & LED:

Press this button to turn On the device or press it again to switch to standby mode. The LED will illuminate when the power is in standby mode. If the LED is flashing it means the temperature inside is too high and air circulation is highly suggested.

2. LCM:

Displays the setting information of each input and output and other setting information according to the selection.

3. LOCK button & LED:

Press this button to lock all the function buttons on panel. The LED will illuminate, to unlock press it again.

4. RETURN:

Press this button to return back/exit the current selection.

5. MENU:

Press this button to enter into the menu selections of

A. EDID

1.Auto EDID: Base on the first connected output TV/Display's EDID from 1~16 ports.

2. Standard EDID: Use the built-in EDID which supports video up to 1080p@60/WUXGA@60RB and audio supports LPCM 2CH.

3. Manual EDID: Support independent EDID by appoint input and output ports.

B. IP

1. IP address,
2. Netmask,
3. Gateway.

C. Temperature

1. Temperature 1,

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2. Temperature 2, these figures shows the temperature of the device inside.

D. LCM Contrast Range from 1~4

6. PAGE ▲▼◄►:

Use these buttons to flip the LCM's page for displaying the current I/O status or when entering into the menu for detail selection.

7. SAVE:

Press this button to save the present setting of the I/O. There are 3 sets available for saving.

8. RECALL:

Press this button to recall from the saving settings of 1~3.

9. ENTER:

Press this button every time to confirm the setting or the selection.

10. ALL:

Press this button to select all outputs to one input.

11. OUT/IN:

Press this button to select input source to displaying on output display. The sequence should be OUT/IN→number(s) for output source→OUT/IN →a number for input display→Enter.

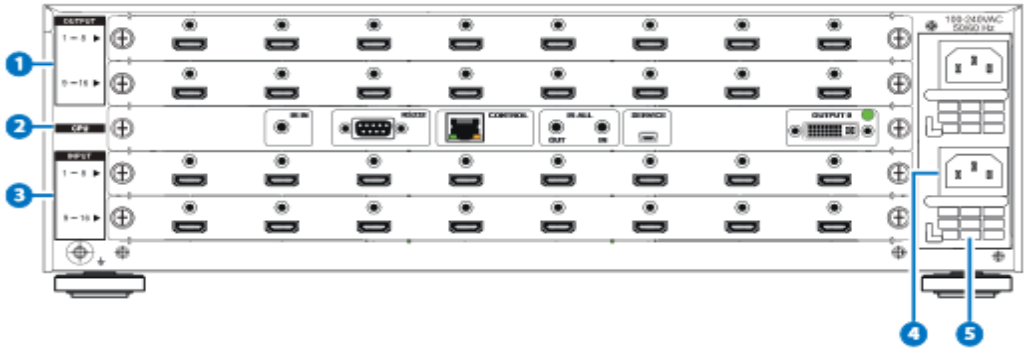
12. 0~9:

Press these numbers when selecting input output ports.

13. +:

Press this button when selecting more than one output for an input selection. This button works correspondingly with OUT/IN button only.

Rear Panel



Note*:The above panel is an illustration of HDMI I/O.*

1. OUTPUT 1~16:

Connect to HD or 3D TV/monitors with HDMI cables up to 16 displays.

2. CPU

a. RS-232: Connect with D-Sub 9-pin cable from the PC/Laptop device for RS-232 control over the Matrix or the connected device(s).
b. CONTROL: Connect to an active network line for LAN serving and Telnet/Web GUI control.
c. IR OUT/IN: Reserved.
d. SERVICE: This port is reserved for firmware update only.
e. OUTPUT 0: Connect to DVI/HDMI (with DVI to HDMI adaptor)

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monitor/TV for instant output image viewing.

3. INPUT 1~16:

Connect to source equipment such as Blu-ray/PS3 players up to 16 sets with HDMI cables.

4. POWER & POWER Supply:

The device will automatically turns ON when connecting with power supply.

5. Ventilation Fan:

This fan will automatically turns ON when the device is switch to ON. Do not block this port of the device or cover it with any object. Please allow adequate space around the unit for air circulation.

RS-232 Protocols

Matrix			Remote Controller	
PIN	Definition		PIN	Definition
1	NC		1	NC
2	TxD	→	2	RxD
3	RxD		3	TxD
4	NC		4	NC
5	GND		5	GND
6	NC	←	6	NC
7	NC		7	NC
8	NC		8	NC
9	NC		9	NC

Baud Rate: 19200bps
Data bit: 8 bits
Parity: None
Flow Control: None
Stop Bit: 1

RS-232 & Telnet Commands

Command	Description
P1	Power on.
P)	Power off
Oxly	Output (x:0~16) set to input (y:1~16)
ALLOUT x	All output set to input (x:01~16)
ACTIVE	Report I/O active channels

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INDETECT	Input channels detect indicator
OUTDETECT	Output channels detect indicator
PORTSTATUS	Report all output connection status.
HDCPON x	Setting input port(x:01~16) HDCP on
HDCPOFF x	Setting input port (x:01~16) HDCP off
HDCPONALL	Setting all input port HDCP on
HDCPOFFALL	Setting all Input port HDCP off
HDCPSTATUS	Show HDCP status of all output(0=HDCP disable,1=enable)
MUTEO x	Video mute command at output (x:0~16) interface
UNMUTEO x	Video unmute command at output (x:0~16) interface
MUTEI x	Video mute command at input (x:0~16) interface
UNMUTEI x	Video unmute command at output (x:0~16) interface
MUTEALL	Mute all outputs
UNMUTEALL	Unmute all outputs
MUTESTATUS	Show mute status of all output(0=not muted,1=muted)
HPDL x	Pull the input(x:01~16) Hot-Plug-Detect signal to 'LOW'
HPDLH x	Pull the input(x:01~16) Hot-Plug-Detect signal to 'HIGH'
HPDLALL	Set all input HPD to Low
HPDLHALL	Set all input HPD to High
HPDLSTATUS	Report all input Hot-Plug-Detect signal status
EDIDMODE x y	Set EDID mode(y:1~2) to Input(x: 01~16)
EDIDMODEALL x	The EDID mode(x:1~2) of All Input
EDIDPORT x y	Set EDID Assigned Port(y:01~16) to Input(x:01~16)
EDIDPORTALL x	The EDID of All Inports is assigned to Output (x:01-16)
EDIDSTATUS	Report all input EDID mode&port
UART x “str”	Write UART string to output port(x:01~16)

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UARTBAUD x y	Setting output port(x:01~16) UART baud rate(y)
STATUSUART	Show output port UART baud rate
TEMPSTATUS	Show temperature sensor values y1, y2
SETIPADDR	Setting IP address<x.x.x.x>
SETSNMASK	Setting subnet mask<x.x.x.x>
SETGWADDR	Setting gateway IP address<x.x.x.x>
IPCONFIG	Display the current IP config
RSTIP	IP Configuration Was Reset To Factory Defaults(DHCP
BUZZER x	Buzzer Mute(0),UnMute(1)
REBOOT	System reboot
SAVETO x	Save as Preset x(1~10)
RECALLTO x	Recall Preset x(1~10)
RESET	System Reset to O1I1,O2I2,O3I3,O4I4,O5I5....
VERSION	Display controller firmware version

Note*: All the command will be not executed unless followed with a carriage return. Commands are case-insensitive*

Telnet Control

Before attempting to use the telnet control, please ensure that both the Matrix (via the 'LAN /CONTROL' port) and the PC/Laptop are connected to the active networks.
To access the telnet control in Windows 7, click on the 'Start' menu and type "cmd" in the Search field then press enter.
Under Windows XP go to the 'Start' menu and click on "Run", type "cmd" with then press enter.
Under Mac OS X, go to Go→Applications→Utilities→Terminal
See below for reference.

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Once in the command line interface (CLI) type "telnet", then the IP address of the unit and "23", then hit enter.

Note:

The IP address of the Matrix can be displayed on the device's LCM monitor by pressing the Menu button twice.

Administrator: C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.
C:\Users\CYP>telnet 192.168.5.80 23_

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This will bring us into the device which we wish to control. Type "HELP" to list the available commands

Telnet 192.168.5.139
Welcome to CYPRESS Matrix TELNET.
telnet-> help
P0 : Power Off
P1 : Power On
RESET : System Reset to 01I1,02I2,03I3,04I4,05I5....
0xxIxx(x:01~8) : Output 0~8 set to Input 1~8
ALLOUT xx(x:01~8) : All Output set to Input 1~8
MUTE xx(x:0~8) : Video mute command at output interface
UNMUTE xx(x:0~8) : Video unmute command at output interface
MUTEALL : Mute all outputs
UNMUTEALL : Unmute all outputs
SHOWMUTE : Show mute status of all output(0=not muted,1=muted)
RDMUTE xx(x:0~8) : Read MUTE Status at Output
HPDLOW xx(x:01~8) : Pull the Hot-Plug-Detect signal to 'LOW'
HPDHIGH xx(x:01~8) : Pull the Hot-Plug-Detect signal to 'HIGH'
HPDLOW ALL : Set All Input HPD to Low
HPDHIGH ALL : Set All Input HPD to High
SHOWHPD : Report ALL Input Hot-Plug-Detect signal status
STATUSHPD x(x:1~8) : Show HPD status of input(x)
SHOWTEMP : Show temperature sensor values y1, y2
STATUSIN xx(x:01~8) : Report Input connection status
STATUSOUT xx(x:0~8) : Report Output connection status
STATUSALL : Report ALL Output connection status
STATUSEDID : Report ALL Input EDID mode&port
SETEDIDMODE ii nn(ii:01~8 nn:1~3) : Set EDID mode(nn) to Input(ii)
SETEDIDMODE ALL nn (nn=1~3) : The EDID mode(nn) of All Input(ii)
SETEDIDPORT ii pp(ii:01~8 pp:01~8) : Set EDID Assigned Port(pp) to Input(ii)
SETEDIDPORT ALL nn (pp=01-8) : The EDID of All Inports is assigned to Output pp
ACTIVE : Report I/O active channels
INDETECT : Input channels detect indicator
OUTDETECT : Output channels detect indicator
IPCONFIG : Display the current IP config
SETIP (IP) (SubNet) (GW) : Setting IP.SbuNet.GateWay(Static IP)
RSTIP : IP Configuration Was Reset To Factory Defaults(DHCP)
SETIPADDR (IP) : Setting IP address
SETSNMASK (SubNet) : Setting subnet mask
SETGWADDR (GW) : Setting gateway IP address
R

Type “IPCONFIG” To show all IP configurations. To reset the IP, type “RSTIP” and to use a set static IP, type ”SETIP” (For a full list of commands, see Section 6.4).

Note:

Any commands will not be executed unless followed by a carriage return. Commands are case-insensitive. If the IP is changed then the IP Address required for Telnet access will also change accordingly.

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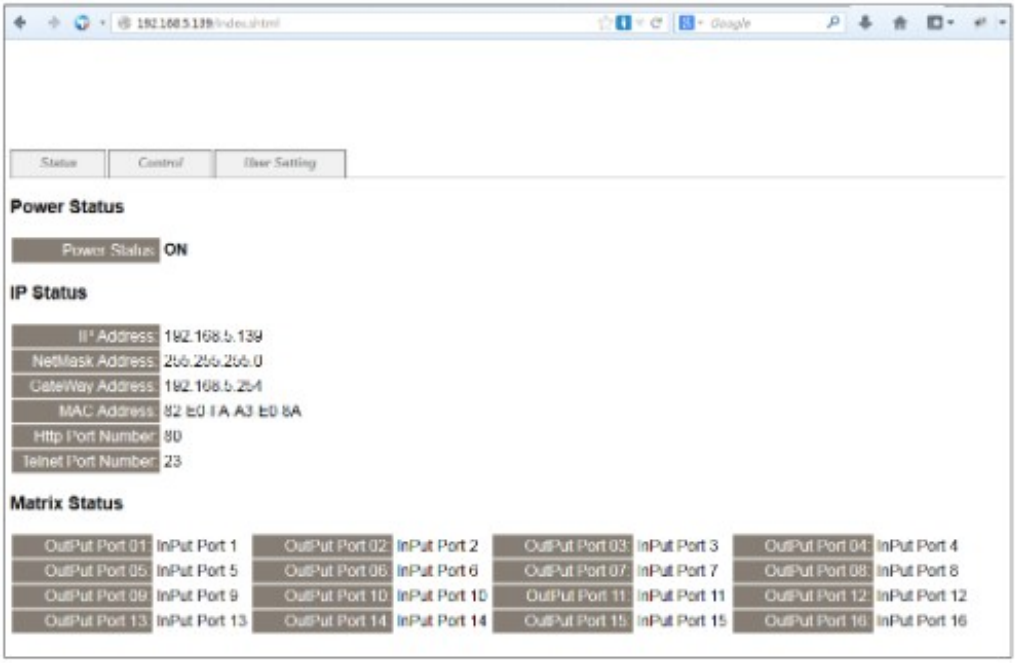
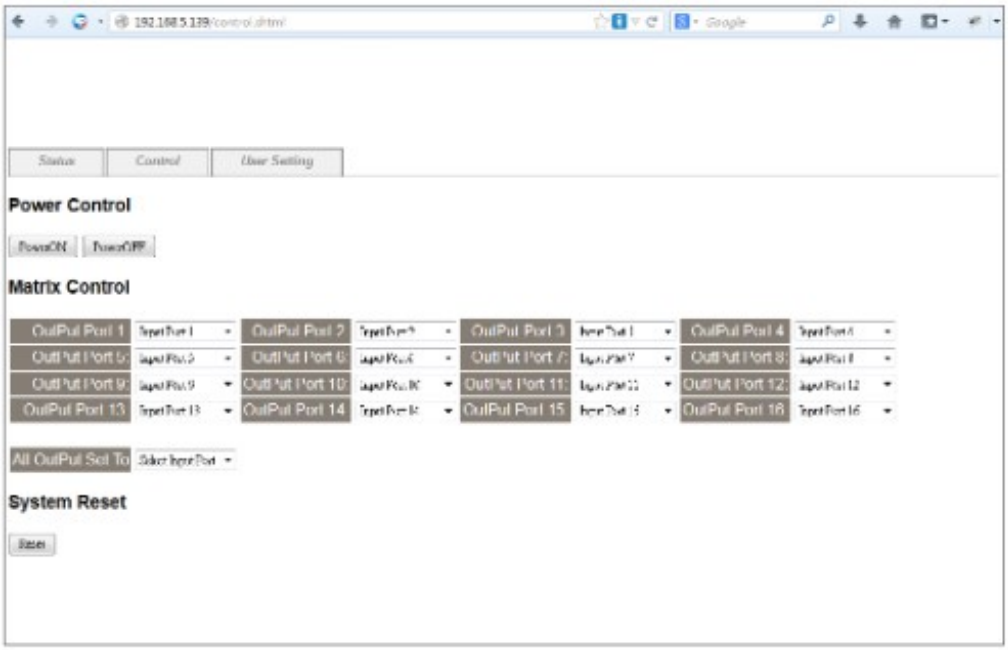
Web GUI Control

On a PC/Laptop that is connected to the same active network as the Matrix, open a web browser and type device's IP address on the web address entry bar. The browser will display the device's status, control and User setting pages


Status
Control
User Setting
Power Status
Power Status ON
IP Status
IP Address 192.168.5.139
NetMask Address 255.255.255.0
GateWay Address 192.168.5.254
MAC Address 82 E0 1A A3 E0 8A
Http Port Number 80
Telnet Port Number 23
Matrix Status
OutPut Port 01 InPut Port 1
OutPut Port 02 InPut Port 2
OutPut Port 03 InPut Port 3
OutPut Port 04 InPut Port 4
OutPut Port 05 InPut Port 5
OutPut Port 06 InPut Port 6
OutPut Port 07 InPut Port 7
OutPut Port 08 InPut Port 8
OutPut Port 09 InPut Port 9
OutPut Port 10 InPut Port 10
OutPut Port 11 InPut Port 11
OutPut Port 12 InPut Port 12
OutPut Port 13 InPut Port 13
OutPut Port 14 InPut Port 14
OutPut Port 15 InPut Port 15
OutPut Port 16 InPut Port 16

Click on the 'Control' tab to control power, input/output ports, EDID and reset mode



Clicking on the 'User Setting' tab allows you to reset the IP configuration. The system will ask for a reboot of the device every time any of the settings

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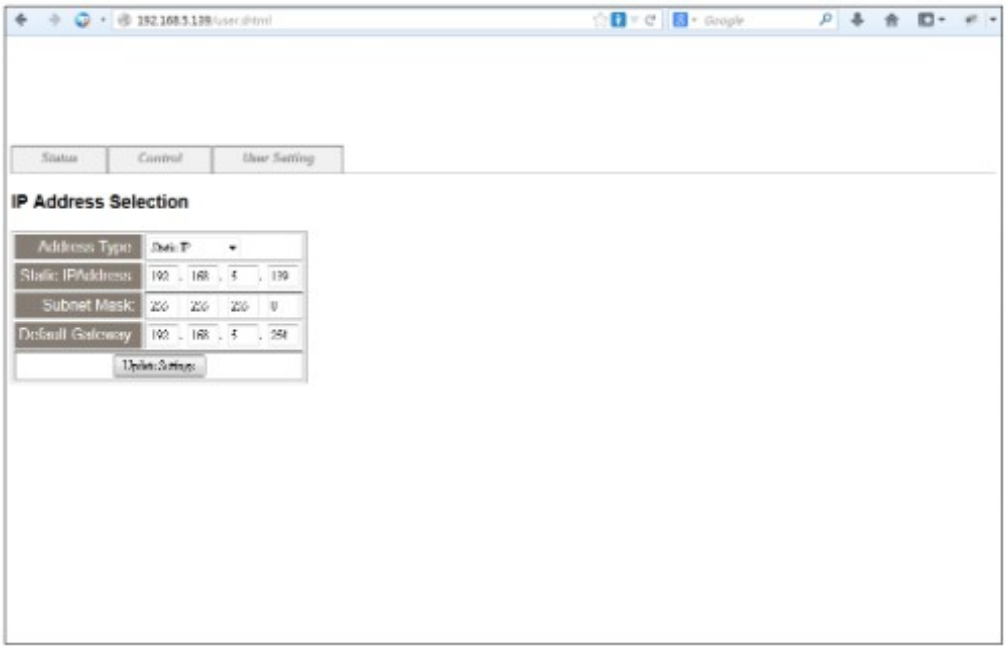
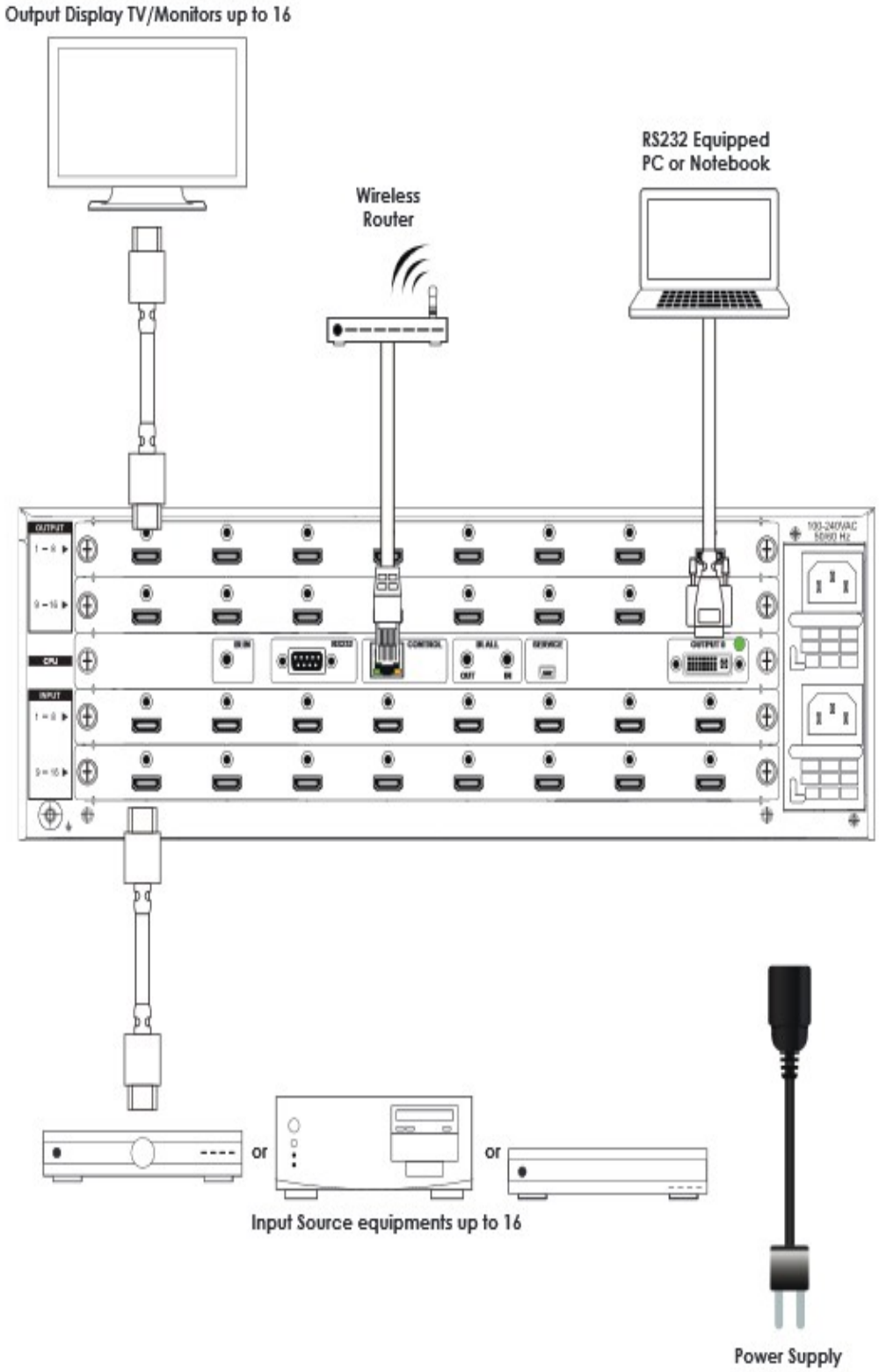
are changed. The IP address needed to access the Web GUI control will also need to be changed accordingly on the web address entry bar



Connections



Specifications

Input ports	16 x HDMI or DVI or CAT5e/6/7 or VGA
Output ports	16 x HDMI or DVI or CAT5e/6/7
Power Supply	2 x AC 110~240V (US/EU standards, CE/FCC/UL certified)
HMDI Cable I/O Distance	15m/8-bits, 10m/12-bits
Dimensions (mm)	482(W) x 484(D) x 145(H)
Weight(g)	14,400
Chassis Material	Metal
Silkscreen Color	Black
Operating Temperature	0℃~40℃/32℉~104℉
Storage Temperature	−20℃~60℃/−4℉~140℉
Relative Humidity	20~90% RH (non-condensing)
Power Consumption	W

CIN-8HS 8 ports HDMI input module

Video Bandwidth	225MHz/6.75Gbps
Input ports	8 * HDMI
Video resolutions	PC: VGA ~WUXGA@60RB HD: 480i~1080p
Audio transmission	LPCM7.1CH, Dolby TrueHD, Dolby Digital Plus, DTS-HD Master Audio (32~192KHz Fs sample rate)

CIN-8DSL 8 ports DVI input module

Video Bandwidth	225MHz/6.75Gbps
Input ports	8 * DVI
Video resolutions	PC: VGA ~WUXGA@60RB HD: 480i~1080p
Audio transmission	LPCM7.1CH, Dolby TrueHD, Dolby Digital Plus, DTS-HD Master Audio (32~192KHz Fs sample rate)

CIN-8VGA 8 ports VGA input module

Input ports	8 * VGA, 8 * 2.5mm Audio phone jack
Video resolutions	PC: VGA ~WUXGA@60RB
Audio transmission	Stereo 2.5mm phone jack (included 2.5mm to 3.5mm adaptor)

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CIN-8HS4K 8 ports 4Kx2K HDMI input module

Video Bandwidth	25~340MHz
Input ports	8 * HDMI
Video resolutions	PC: VGA ~WUXGA HD: 480i~1080p, 4Kx2K@30Hz
Audio transmission	LPCM7.1CH, Dolby TrueHD, Dolby Digital Plus, DTS-HD Master Audio (32~192KHz Fs sample rate)

COUT-8HS 8 ports HDMI output module

Video Bandwidth	225MHz/6.75Gbps
Input ports	8 * HDMI
Video resolutions	PC: VGA ~WUXGA@60RB HD: 480i~1080p
Audio transmission	LPCM7.1CH, Dolby TrueHD, Dolby Digital Plus, DTS-HD Master Audio (32~192KHz Fs sample rate)

COUT-8DS 8 ports DVI output module

Video Bandwidth	225MHz/6.75Gbps
Output ports	8 * DVI
Video resolutions	PC: VGA ~WUXGA@60RB HD: 480i~1080p
Audio transmission	LPCM7.1CH, Dolby TrueHD, Dolby Digital Plus, DTS-HD Master Audio (32~192KHz Fs sample rate)

COUT-8HS4K 8 ports 4Kx2K HDMI output module

Video Bandwidth	25~340MHz
Output ports	8 * HDMI
Video resolutions	PC: VGA ~WUXGA HD: 480i~1080p, 4Kx2K@30Hz
Audio transmission	LPCM7.1CH, Dolby TrueHD, Dolby Digital Plus, DTS-HD Master Audio (32~192KHz Fs sample rate)

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COUT-8CVL-3PLAY 8 ports HDBaseT output module

Video Bandwidth	225MHz/6.25Gbps
Features	Support HDBaseT/IR/RS232
Output ports	8 * CAT5e/6, 8 * IR Extender, 8 * IR Blaster
Video resolutions	PC: VGA ~ WUXGA HD: 480i~1080p
Audio transmission	LPCM7.1CH, Dolby TrueHD, Dolby Digital Plus, DTS-HD Master Audio (32~192KHz Fs sample rate)

COUT-8CV-4PLAY 8 ports HDBaseT output module

Video Bandwidth	300MHz/10.2Gbps
Features	Support HDBaseT/PoE/IR/RS232
Output ports	8 * CAT5e/6, 8 * IR Extender, 8 * IR Blaster
IR Frequency	30~50Hz
Video resolutions	PC: VGA ~ WUXGA HD: 480i~1080p
Audio transmission	LPCM7.1CH, Dolby TrueHD, Dolby Digital Plus, DTS-HD Master Audio (32~192KHz Fs sample rate)

COUT-8CV-5PLAY 8 ports HDBaseT output module

Video Bandwidth	300MHz/10.2Gbps
Features	Support HDBaseT/PoE/IR/RS232/Ethernet
Output ports	8 * CAT5e/6, 8 * IR Extender, 8 * IR Blaster, 1* LAN
Ethernet Speed	100Mbps
IR Frequency	30~50Hz
Video resolutions	PC: VGA ~WUXGA HD: 480i~1080p, 4Kx2K@30Hz
Audio transmission	LPCM7.1CH, Dolby TrueHD, Dolby Digital Plus, DTS-HD Master Audio (32~192KHz Fs sample rate)

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CAT5e/6/7 Cable Specification

COUT-8CVL-3PLAY Cable Distance

Cable Type	Range	Pixel Clock Rate	Video Data Rate	Supported Video
CAT5e/6/7	60m	<=225 MHz	<=5.3 Gbps (HD Video)	Up to 1080p, 60 Hz, 36 bits, 3D (data rates lower than 5.3 Gbps or below 225 MHz TMDS clock)
	40m	>225 MHz	> 5.3 Gbps (Ultra HD Video)	4K2K, 30Hz video formats

COUT-8CV-4PLAY & COUT-8CV-5PLAY Cable Distance

Cable Type	Range	Pixel Clock Rate	Video Data Rate	Supported Video
CAT5e/6/7	100m	<=225 MHz	<=5.3 Gbps (HD Video)	Up to 1080p, 60 Hz, 36 bits, 3D (data rates lower than 5.3 Gbps or below 225 MHz TMDS clock)
	70m	>225 MHz	> 5.3 Gbps (Ultra HD Video)	4K2K, 30Hz video formats

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